

FIG. 1

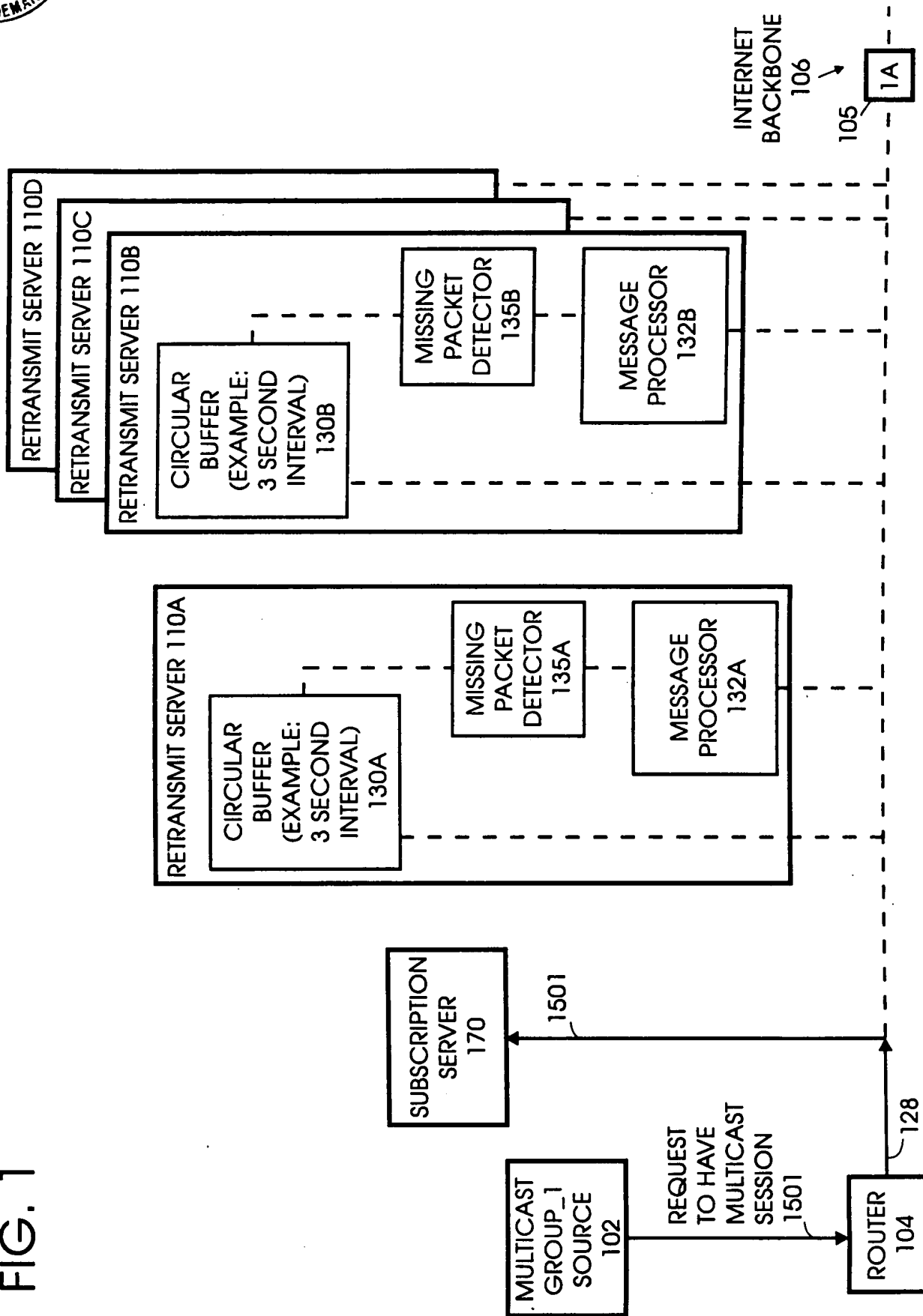


FIG. 1A

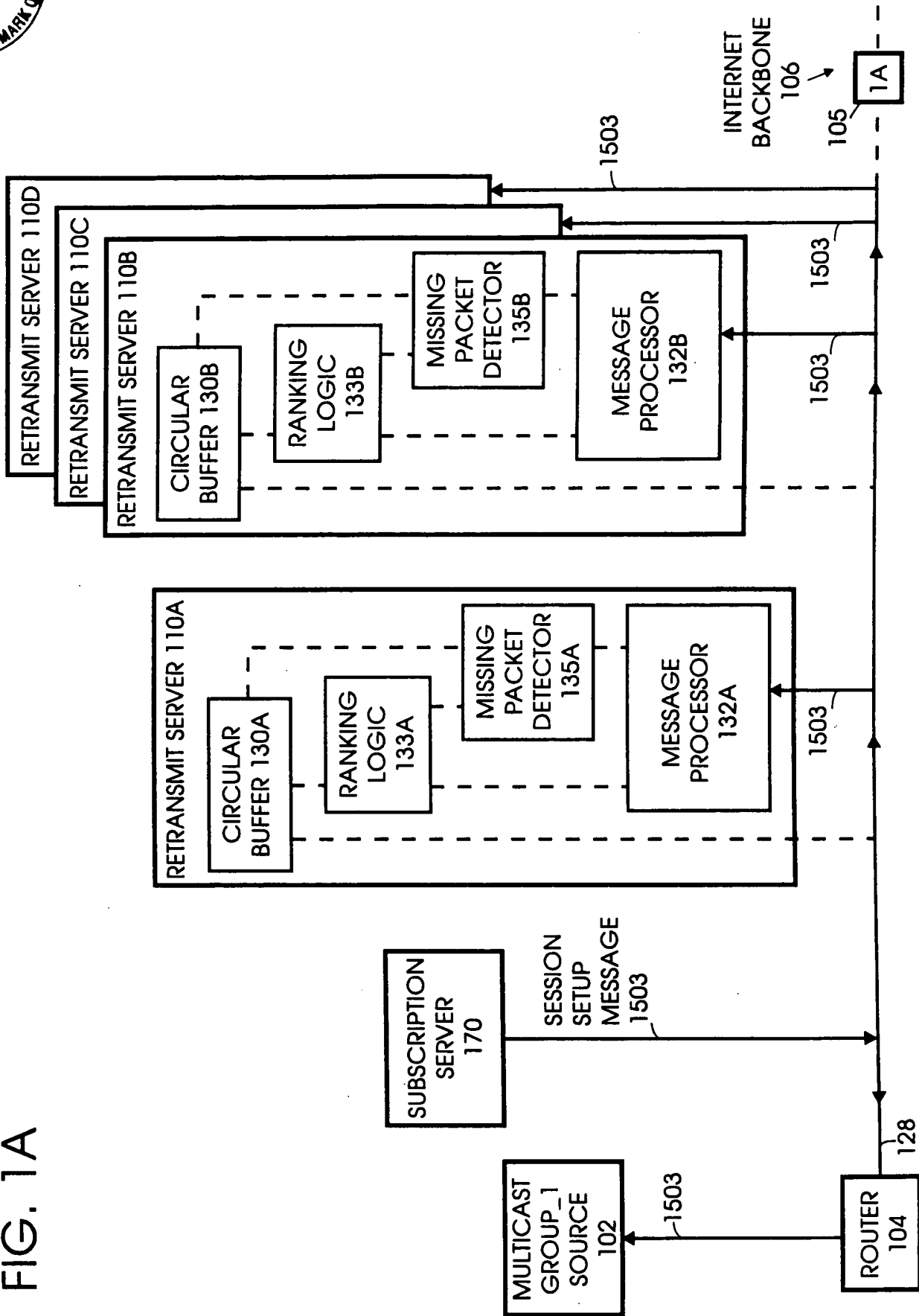
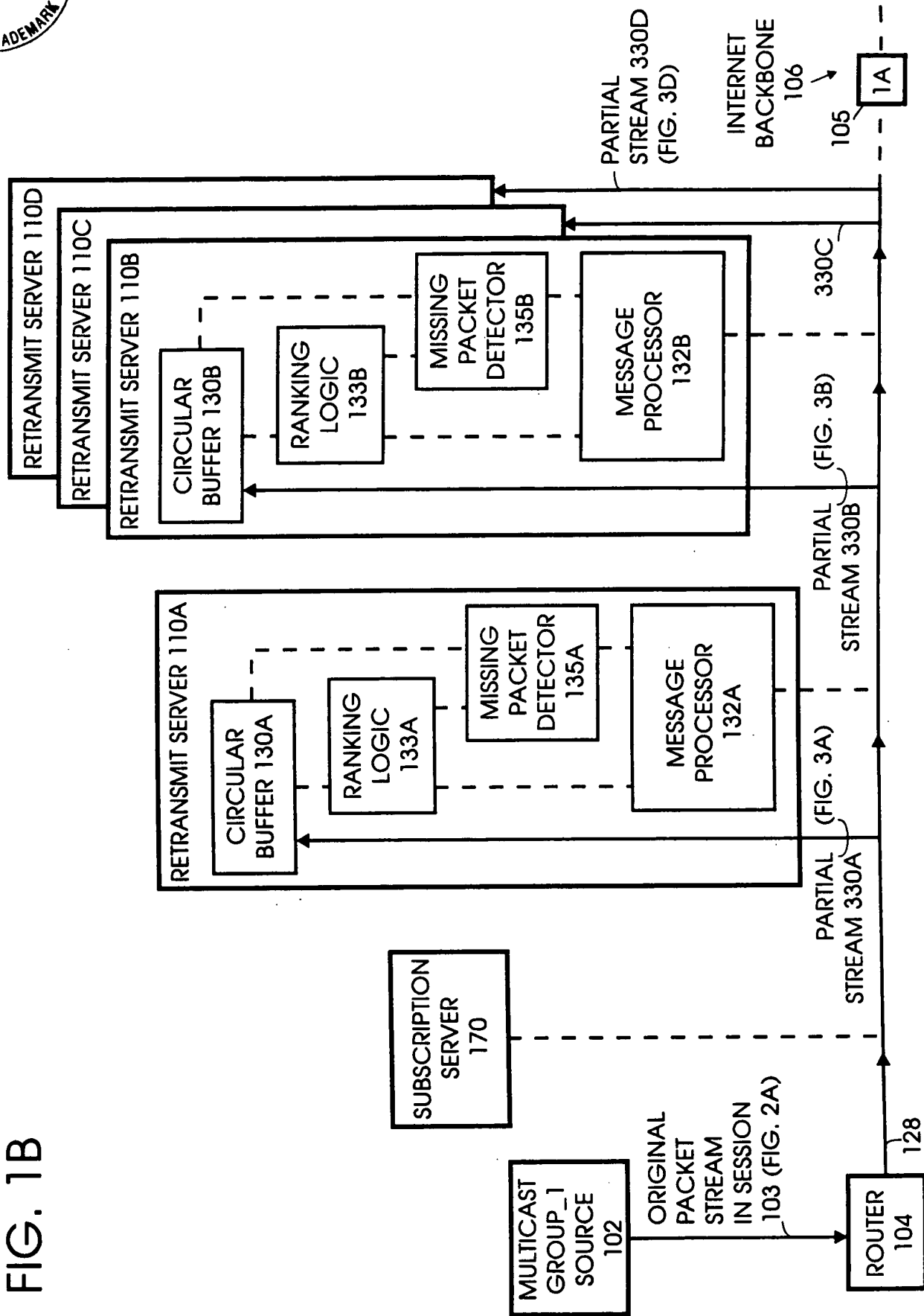
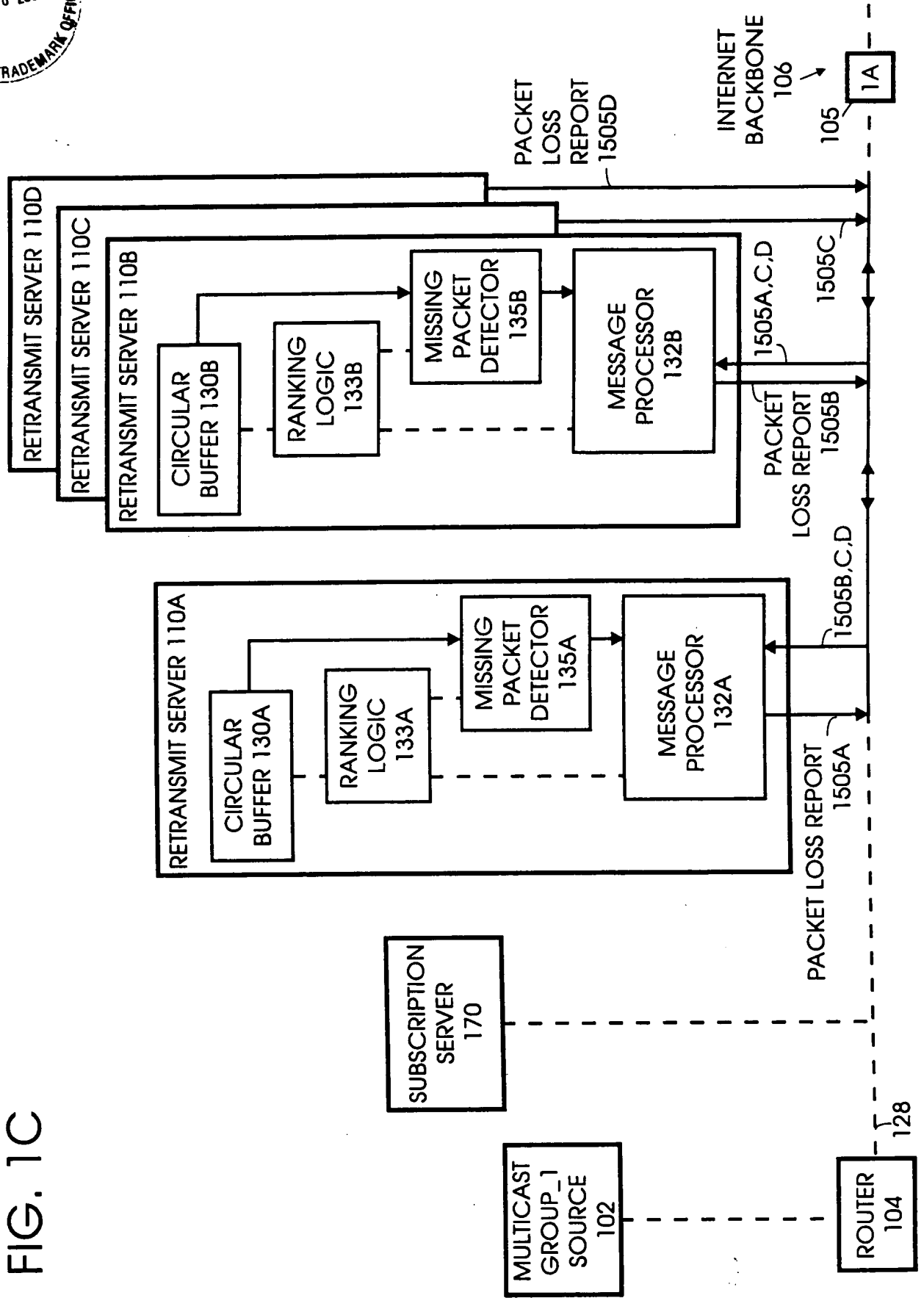
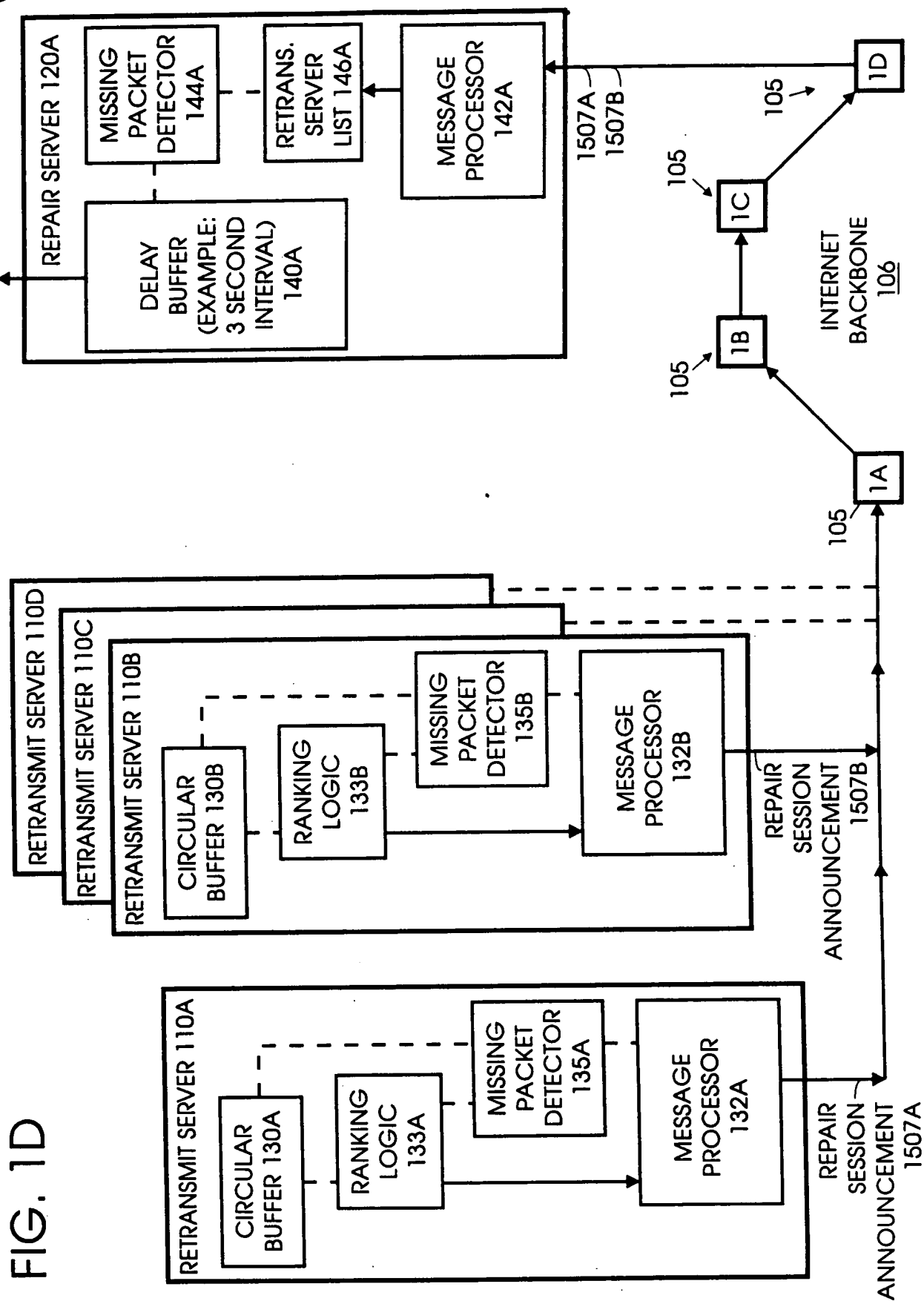
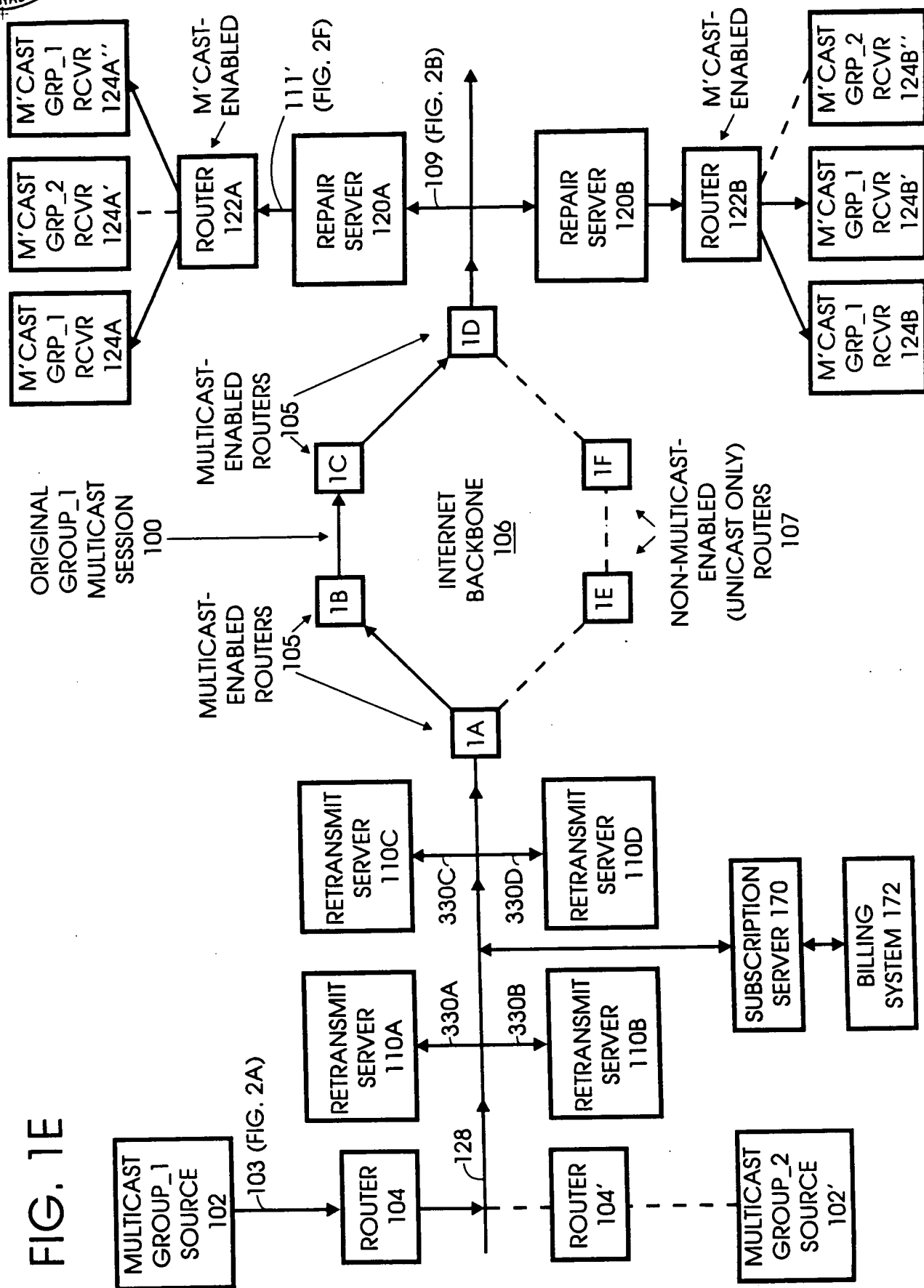


FIG. 1B









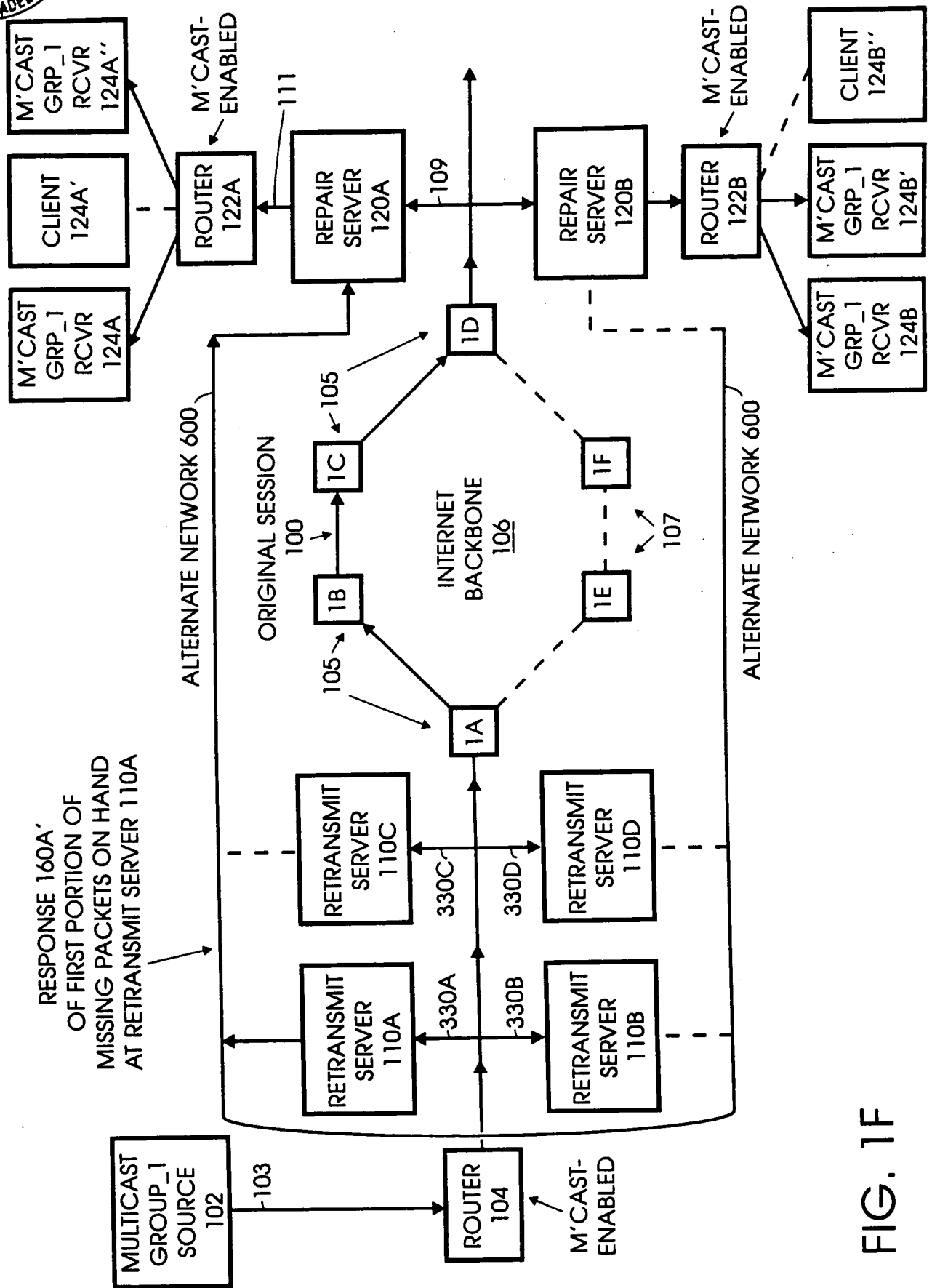


FIG. 1F

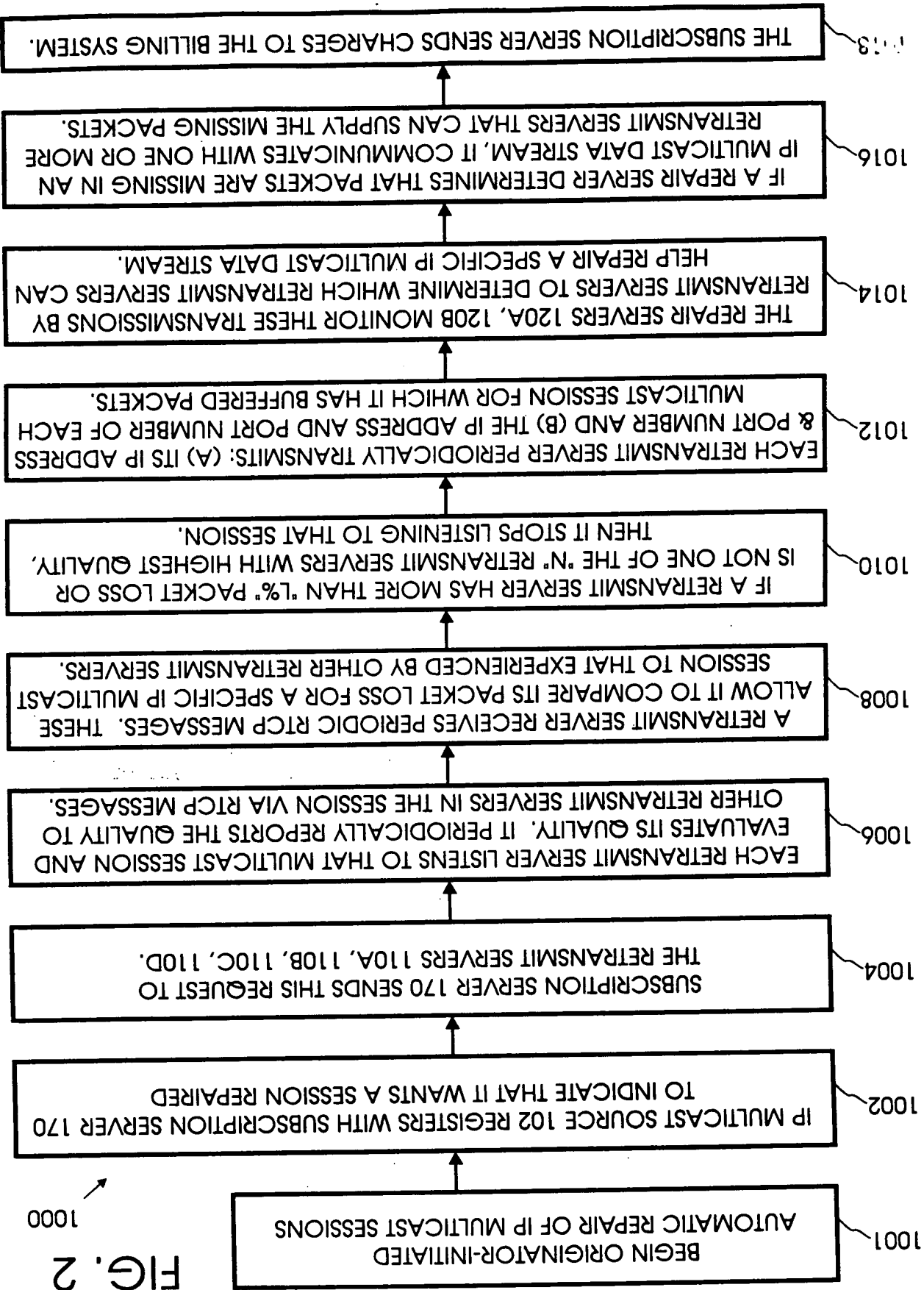


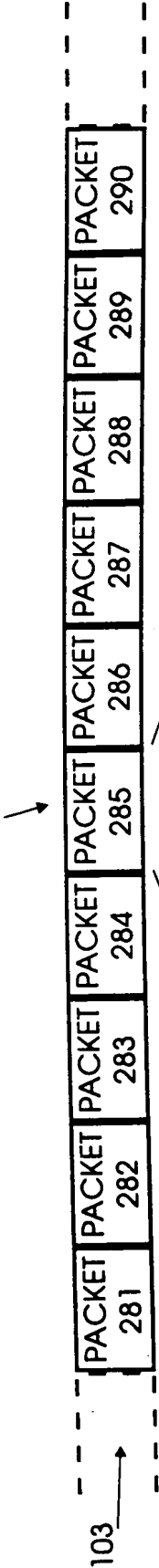
FIG. 2
1000





FIG. 2A

PACKETS CURRENTLY BEING OUTPUT BY
MULTICAST GROUP_1 SOURCE 102



IP HEADER			UDP HEADER		RTP MESSAGE		
o o	SOURCE IP ADDRESS	DESTINATION IP ADDRESS	SOURCE PORT	DEST. PORT	o o	SEQUENCE NUMBER	TIME STAMP
	RETRANS. SERVER 110A	MULTICAST GROUP_1 ADDRESS	CIRC. BUFFER 130A	DELAY BUFFER 140A		285	090235
					DATA		

PACKET 285

FIG. 2B



↑
PACKETS CURRENTLY BEING DELIVERED TO DELAY BUFFER 140A

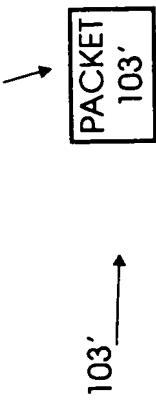
FIG. 2C



↑
PACKETS CURRENTLY BEING DELIVERED TO ROUTER 122A
WITH A 3-SECOND DELAY

FIG. 2D

RTCP SOURCE DESCRIPTION PACKET PERIODICALLY OUTPUT BY
 MULTICAST GROUP_1 SOURCE 102

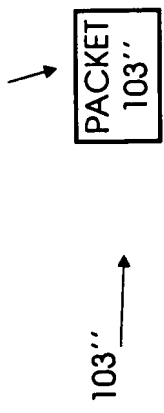


IP HEADER			UDP HEADER		RTCP SOURCE DESCRIPTION			
00	SOURCE IP ADDRESS	DESTINATION IP ADDRESS	SOURCE PORT	DEST. PORT	00	CNAME	TOOL	NOTE
	RETRANS. SERVER 110A	MULTICAST GROUP_1 ADDRESS	MSG. PROC. 132A	MSG. PROC. 142		GROUP_1 SOURCE 102	MPEG2	"VOICE TRACK IS 5 CHANNELS"

PACKET 103'

FIG. 2E

RTCP SENDER REPORT PACKET PERIODICALLY OUTPUT BY
MULTICAST GROUP_1 SOURCE 102



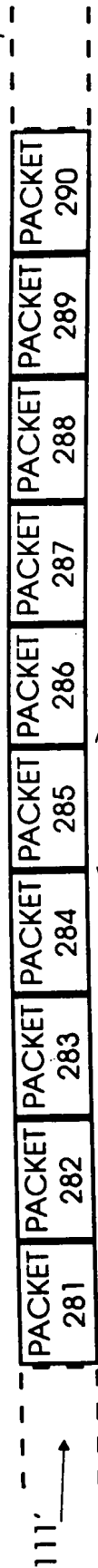
IP HEADER				UDP HEADER		RTCP SENDER REPORT			
00	SOURCE IP ADDRESS	DESTINATION IP ADDRESS	IP OPTIONS	SOURCE PORT	DEST. PORT	00	SENDER'S ID	SENDER'S PACKET COUNT	SENDER'S OCTET COUNT
	RETRANS. SERVER 110A	MULTICAST GROUP_1 ADDRESS		MSG. PROC. 132A	MSG. PROC. 142				
							GROUP_1 SOURCE 102	290	290,000

PACKET 103''



FIG. 2F

REPAIRED MULTICAST SESSION 111'
WHICH APPEARS TO RECIPIENT RECEIVERS 124A
TO BE THE SAME MULTICAST GROUP_1 SESSION
FROM SOURCE 102



IP HEADER			UDP HEADER		RTP MESSAGE		
00	SOURCE IP ADDRESS	DESTINATION IP ADDRESS	SOURCE PORT	DEST. PORT	00	SEQUENCE NUMBER	TIME STAMP
	REPAIR SERVER 120A	MULTICAST GROUP_1 ADDRESS	DELAY BUFFER 140A	RCVR 124			
					00	285	090235
					DATA		

PACKET 285 →



FIG. 3A

RETRANSMIT SERVER

110A

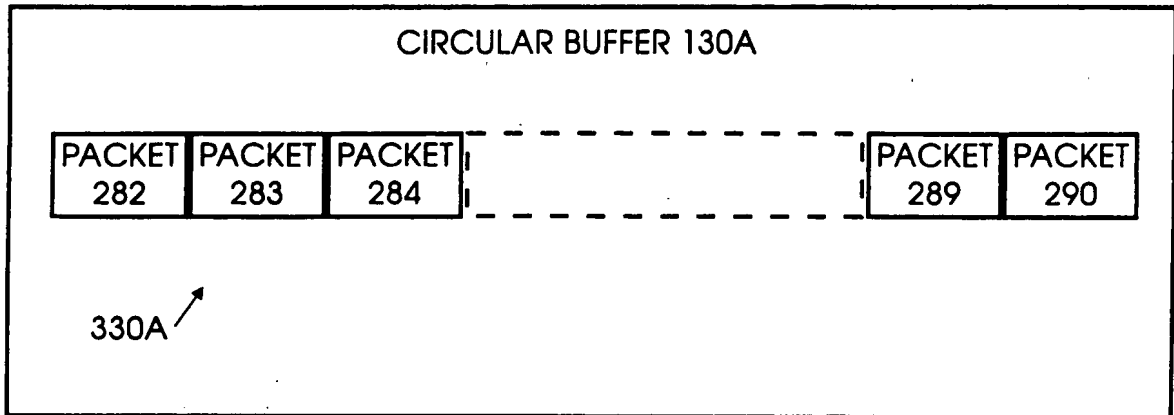


FIG. 3B

RETRANSMIT SERVER

110B

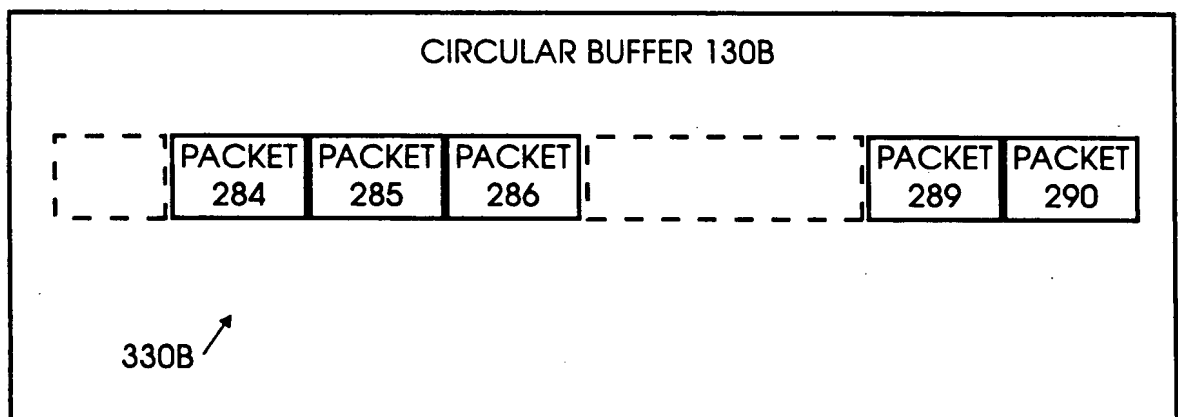


FIG. 3C

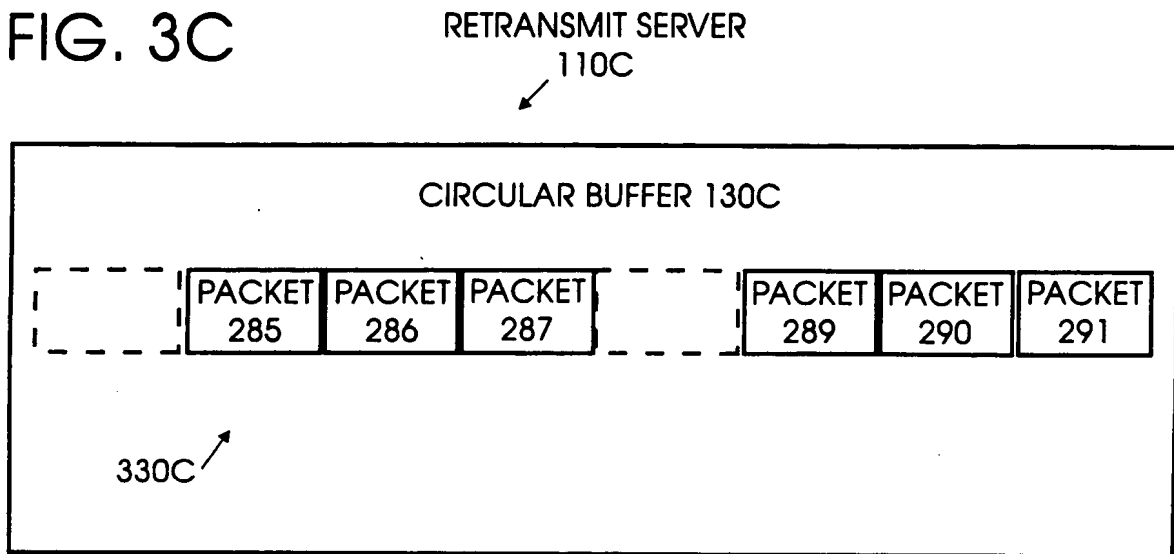


FIG. 3D

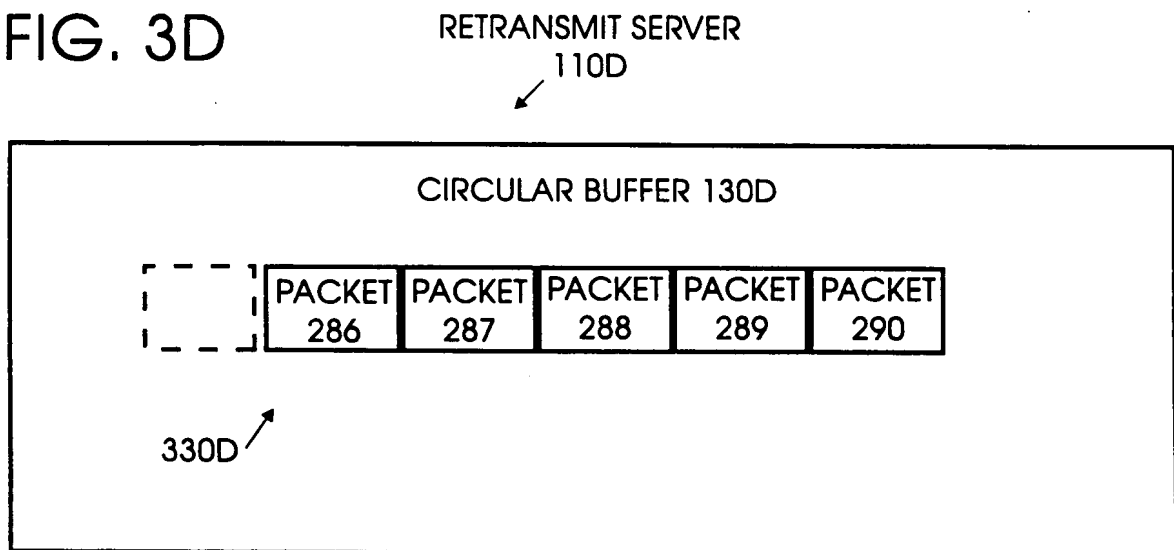
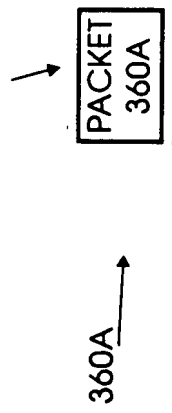


FIG. 3E

RTCP RECEIVER REPORT PACKET PERIODICALLY OUTPUT BY
RETRANSMIT SERVER 110A



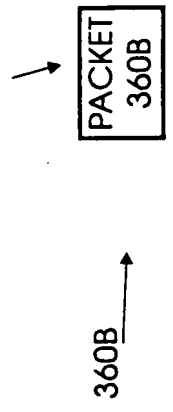
IP HEADER			UDP HEADER		RTCP RECEIVER REPORT							
	SOURCE IP ADDRESS	DEST. IP ADDRESS	SOURCE PORT	DEST. PORT		ORIGINAL SENDER ID	RCVR'S ID	RCVR'S PACKET COUNT	FRACT'N LOST	TOTAL LOST	INTER-ARRIVAL JITTER	ROUND TRIP DELAY
...	RETRANS. SERVER 110A	M'CAST GROUP_1 ADDRESS	MSG. PROC. 132A	MSG. PROC. 142	...	GROUP_1 SOURCE 102	RETRANS. SERVER 110A	286	286/290	4	0123	0567

PACKET 360A



FIG. 3F

RTCP RECEIVER REPORT PACKET PERIODICALLY OUTPUT BY
RETRANSMIT SERVER 110B



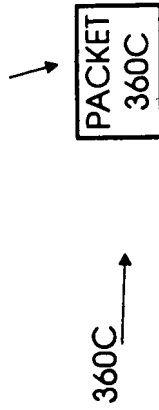
IP HEADER			UDP HEADER		RTCP RECEIVER REPORT							
	SOURCE IP ADDRESS	DEST. IP ADDRESS	SOURCE PORT	DEST. PORT	...	ORIGINAL SENDER ID	RCVR'S ID	RCVR'S. PACKET COUNT	FRACT'N LOST	TOTAL LOST	INTER-ARRIVAL JITTER	ROUND TRIP DELAY
...	RETRANS. SERVER 110B	M'CAST GROUP_1 ADDRESS	MSG. PROC. 132B	MSG. PROC. 142		GROUP_1 SOURCE 102	RETRANS. SERVER 110B	285	285/290	5	0125	0569

PACKET 360B



FIG. 3G

RTCP RECEIVER REPORT PACKET PERIODICALLY OUTPUT BY
RETRANSMIT SERVER 110C



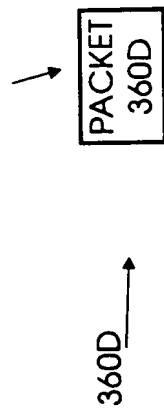
IP HEADER			UDP HEADER		RTCP RECEIVER REPORT						
SOURCE IP ADDRESS	DEST. IP ADDRESS		SOURCE PORT	DEST. PORT	ORIGINAL SENDER ID	RCVR'S ID	RCVR'S. PACKET COUNT	FRACT'N LOST	TOTAL LOST	INTER- ARRIVAL JITTER	ROUND TRIP DELAY
RETRANS. SERVER 110C	M'CAST GROUP_1 ADDRESS	...	MSG. PROC. 132C	MSG. PROC. 142	GROUP_1 SOURCE 102	RETRANS. SERVER 110C	284	284/290	6	0127	0571

PACKET 360C



FIG. 3H

RTCP RECEIVER REPORT PACKET PERIODICALLY OUTPUT BY
RETRANSMIT SERVER 110D



IP HEADER			UDP HEADER		RTCP RECEIVER REPORT							
	SOURCE IP ADDRESS	DEST. IP ADDRESS	SOURCE PORT	DEST. PORT		ORIGINAL SENDER ID	RCVR'S ID	RCVR'S. PACKET COUNT	FRACT'N LOST	TOTAL LOST	INTER-ARRIVAL JITTER	ROUND TRIP DELAY
...	RETRANS. SERVER 110D	M'CAST GROUP_1 ADDRESS	MSG. PROC. 132D	MSG. PROC. 142	...	GROUP_1 SOURCE 102	RETRANS. SERVER 110D	283	283/290	7	0129	0573

PACKET 360D



FIG. 3

